इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 10960-1 (1984): Grain sizes for diamond or cubic boron nitride, Part 1: Designation and grain sizes distribution [PGD 9: Abrasives]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

UDC 621·921·34 : 620·186·82

IS : 10960 (Part 1) - 1984

Indian Standard (Reaffirmed 2005)

GRAIN SIZES FOR DIAMOND OR CUBIC BORON NITRIDE

PART 1 DESIGNATION AND GRAIN SIZES DISTRIBUTION

1. Scope — Covers designation and grain sizes distribution of diamond (natural or synthetic) or cubic boron nitride grains used for the manufacture of diamond or cubic boron nitride grinding wheels, saws and other industrial products.

Note — For simplification, reference is made throughout this standard to diamond' grains, but all indications also apply to cubic boron nitride.

2. Terminology

2.1 *Grit* — Number indicating the size of the abrasive grain.

3. Designation — The grain sizes of abrasives are distinguished in macro and micro grain sizes. The macro grain sizes are further subdivided into grain sizes with narrow range grades (*see* Table 1) and wide range grades (*see* Table 2).

3.1 *Macro Grain Sizes with Narrow Range Grades* — The designation of macro grain size with narrow range grades, is derived from the sieve mesh opening. It refers to the designation of the top test sieve (*sieve* 2). The last figure of the sieve designation is however increased by 1. This shows that the lower test sieve (*sieve* 3) is respectively one interval of the sieve series finer than the upper test sieve (*sieve* 2) (*see* Table 1).

Note — In the case of grain sizes not determined by wire sieves but determined with electro-formed sieves; the grain size designation is derived from the nominal mesh opening of the corresponding wire sieve.

3.2 *Macro Grain Sizes with Wide Range Grades* — In the case of macro grain sizes with wide range grades, the last figure of the sieve designatton is increased by 2. This shows that the lower test sieve (*sieve* 3) is finer than the upper test sieve (*sieve* 2) by two intervals of the sieve series (*see* Table 2).

3.3 *Letter Symbols* — In order to distinguish, letters '*D*' for diamond and '*B*' for cubic boron nitride before the figure shall be adopted.

Example for Designation — Abrasive grain size 426 of diamond, shall be designated as:

Grain Size IS : 10960 (Part 1) D426

Abrasive grain size 426 of cubic boron nitride shall be designated as:

Grain Size IS : 10960 (Part 1) B426

4. Grit Designation and Grain Size Distribution

4.1 The grit designation and grain size distribution of narrow range grade shall be as given in Table 1.

4.2 The grit designation and grain size distribution of wide range grade shall be as given in Table 2.

4.3 Testing of grain sizes specified at **4.1** and **4.2** shall be done in accordance with IS : 10960 (Part 2)-1984 Method of test for macro grits.

4.4 For the relation between IS grit designation with the other national sizes, reference may be made to Appendix A.

Adopted 18 July 1984	© September 1984, ISI	Gr 2

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Abrasives Sectional Committee, EDC 13; Industrial Diamond and Super Abrasives Subcommittee EDC 13 : 4 [Ref : Doc : EDC 13 (3968)]

TABLE 1 GRIT (GRAIN SIZE) DESIGNATION AND GRAIN SIZE DISTRIBUTION OF THE MACRO GRAIN SIZES WITH NARROW RANGE GRADES

(*Clauses* 3 *and* 4.1)

IS Grit Designation		**Sieve Aperture Size**	**Sieve 1**	**Sieve 2**		**Sieve 3**			**Sieve 4**
Diamond	Cubic Boron Nitride		99·9 percent Through Sieve (Over size limiting sieve)	Upper Test Sieve		Lower Test Sieve			2 percent Through Sieve (Under size limiting sieve)
				Aperture Size	*Max.* Over size	Aperture size	*Min.* Over size	*Max.* Under size	
		µm	µm	µm	percent	µm	percent	percent	µm
D 1181	B 1181	1180/1000	1700	1180	8	1000	90	8	710
D 1001	B 1001	1000/850	1400	1000		850			600
D 851	B 851	850/710	1180	850		710			500
D 711	B 711	710/600	1000	710	8	600	90	8	425
D 601	B 601	600/500	850	600		500			355
D 501	B 501	500/425	710	500		425			300
D 426	B 426	425/355	600	455		360			255
D 356	B 356	355/300	500	384	8	302	90	8	213
D 301	B 301	300/250	455	322		255			181
D 251	B 251	250/212	384	271		213			151
D 213	B 213	212/180	322	227		181			127
D 181	B 181	180/150	271	197	10	151	87	10	107
D 151	B 151	150/125	227	165		127			90
D 126	B 126	125/106	197	139		107			75
D 107	B 107	106/90	165	116	11	90	85	11	65
D 91	B 91	90/75	139	97		75			57
D 76	B 76	75/63	116	85		65			49
D 64	B 64	63/53	97	75		57			41
D 54	B 54	53/45	85	65	15	49	80	15	—
D 46	B 46	45/38	75	57		41			

1 µm = 10^{-6}m.

TABLE 2 GRIT (GRAIN SIZE) DESIGNATION AND GRAIN SIZE DISTRIBUTION OF THE MACRO GRAIN SIZES WITH WIDE RANGE GRADES

(*Clauses* 3 *and* 4.2)

IS Grit Designation		**Sieve Aperture Size**	**Sieve 1**	**Sieve 2**		**Sieve 3**			**Sieve 4**
Diamond	Cubic Boron Nitride		99·9 percent Through Sieve (Over size limiting sieve)	Upper test Sieve		Lower Test Sieve			2 percent Through Sieve (Under size limiting sieve)
				Aperture Size	*Max.* Over Size	Aperture Size	*Min.* Over Size	*Max.* Under Size	
		µm	µm	µm	percent	µm	percent	percent	µm
D 1182	B 1182	1180/850	1700	1180	8	850	90	8	600
D 852	B 852	850/600	1180	850		600			425
D 602	B 602	600/425	850	600		425			300
D 427	B 427	425/300	600	455	8	302	90	8	213
D 252	B 252	250/180	384	271		181			127

1 µm = 10^{-6}m.

APPENDIX A

APPROXIMATE RELATION BETWEEN IS GRIT DESIGNATION WITH OTHER NATIONAL SIZES

(*Clause* 4.4)

IS		FEPA		British BS : 1987	US ASTM E 11	German DIN 848 (Part 1) - 1980		ISO 6106-1979	Sieve Aperture Size
Diamond	CBN*	Diamond	CBN*			Diamond	CBN*		µm
D 1181	B 1181	D 1181	B 1181	14/ 16	16/ 18	D 1181	B 1181	1181	1180/1000
D 1001	B 1001	D 1001	B 1001	16/ 18	18/ 20	D 1001	B 1001	1001	1000/ 850
D 851	B 851	D 851	B 851	18/ 22	20/ 25	D 851	B 851	851	850/ 710
D 711	B 711	D 711	B 711	22/ 25	25/ 30	D 711	B 711	711	710/ 600
D 601	B 601	D 601	B 601	25/ 30	30/ 35	D 601	B 601	601	600/ 500
D 501	B 501	D 501	B 501	30/ 36	35/ 40	D 501	B 501	501	500/ 425
D 426	B 426	D 426	B 426	36/ 44	40/ 45	D 426	B 426	426	425/ 355
D 356	B 356	D 356	B 356	44/ 52	45/ 50	D 356	B 356	356	355/ 300
D 301	B 301	D 301	B 301	52/ 60	50/ 60	D 301	B 301	301	300/ 250
D 251	B 251	D 251	B 251	60/ 72	60/ 70	D 251	B 251	251	250/ 212
D 213	B 213	D 213	B 213	72/ 85	70/ 80	D 213	B 213	213	212/ 180
D 181	B 181	D 181	B 181	85/100	80/100	D 181	B 181	181	180/ 150
D 151	B 151	D 151	B 151	100/120	100/120	D 151	B 151	151	150/ 125
D 126	B 126	D 126	B 126	120/150	120/140	D 126	B 126	126	125/ 106
D 107	B 107	D 107	B 107	150/170	140/170	D 107	B 107	107	106/ 90
D 91	B 91	D 91	B 91	170/200	170/200	D 91	B 91	91	90/ 75
D 76	B 76	D 76	B 76	200/240	200/230	D 76	B 76	76	75/ 63
D 64	B 64	D 64	B 64	240/300	230/270	D 64	B 64	64	63/ 53
D 54	B 54	D 54	B 54	300/350	270/325	D 54	B 54	54	53/ 45
D 46	B 46	D 46	B 46	350/400	325/400	D 46	B 46	46	45/ 38

*Cubic Boron Nitride

EXPLANATORY NOTE

This part of the standard covers the grit designation and the grain size distribution of narrow as well as wide range grades of diamond or cubic boron nitride abrasive grains; whereas the method of test for the macro grits has been covered in IS : 10960 (Part 2)-1984.

This standard is in alignment with DIN 848 (Part 1)-1980 'Grain sizes of diamond or cubic boron nitride — Designation — Grain size distribution' issued by Deutsches Institut für Normung, which is also in agreement with ISO 6106-1979 issued by the International Organization for Standardization (ISO).

Printed at Printrade, New Delhi, India